



- i Unwise harvesting of wetland resources.** Over-harvesting or unsustainable practices have greatly reduced/depleted wetland resources e.g. wetland forest products and fisheries.
- ii Conversion/Reclamation of wetland areas.** Reclamation or conversion of wetlands to other land use affects the natural functions of wetlands, water cycles, biological diversity and habitats for species.
- iii Changes to wetland hydrology.** Regulation of flows by weirs and dams results in disruption to natural fluctuations in supply of water to wetlands. Many natural watercourses in urban areas have been converted to concrete lined drains.
- iv Drainage.** Drainage of wetland areas results in poor drainage of surface water and significantly contribute to the loss of recharge of groundwater. The capacity of wetlands to serve as carbon sinks is severely reduced.
- v Pollution.** Pollutants tend to accumulate and concentrate in wetlands, as many rivers transverse catchment areas. Pollution can severely affect the ecological integrity of wetlands.
- vi Exotic Species.** Exotic species are the greatest threat to natural communities. They compete with native species and cause their disappearance in a wetland area.
- vii Inadequate buffer zone reserves.** Buffer zone reserves along the boundaries or peripheries of wetland areas are generally inadequate due to poor land use planning and poor management practices.



Exotic species

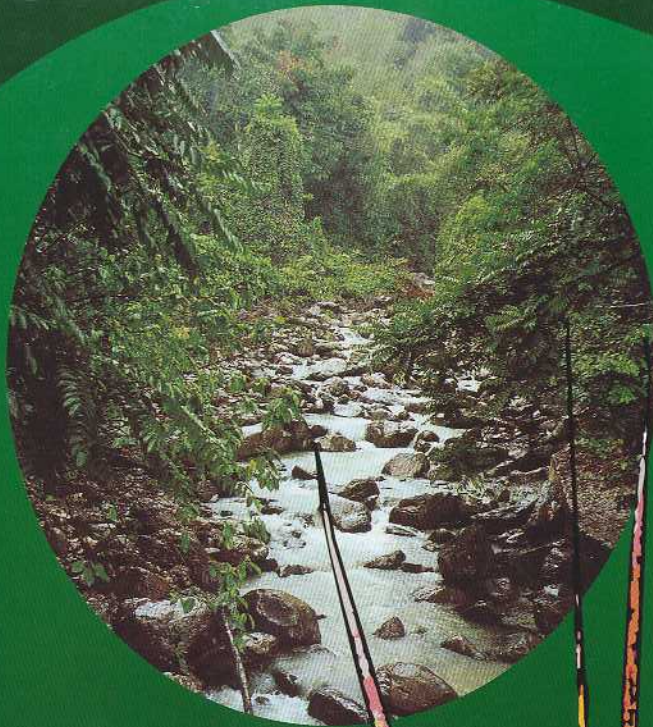
Changes to wetland hydrology

Pollution

Sediments in the lake

Conversion/Reclamation of wetland areas

A fishing net employed here called a Tapuk



For further information, please contact



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This brochure was made possible with financial assistance from The Dutch Ministry of Foreign Affairs (DGIS), Netherlands through the Conservation and Wise Use of Wetlands-Global Programme.

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# Wetlands

## The cradle of life





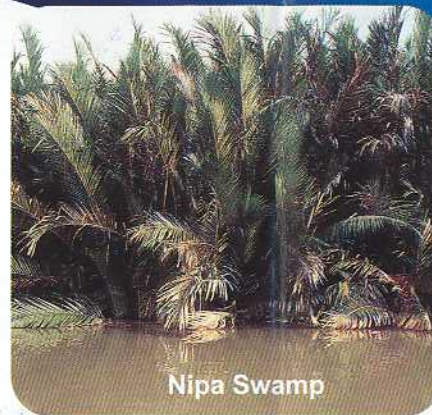
# Definition of

# Wetlands

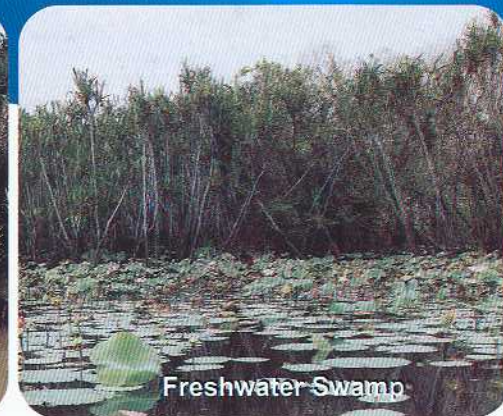
Wetlands are areas where water is the primary factor controlling the environment and the associated plant and animal life.



- **Natural Wetlands** comprises freshwater swamps, peat swamps, river systems, floodplains, natural lakes, marshes, mangroves, Melaleuca swamps, sandy beaches and rocky shores, Nipa swamps, coral reefs, seagrass beds and mudflats.
- **Man Made Wetlands** are wetlands such as rice fields, mining pools, ponds, reservoirs, sewage farms as well as constructed lakes and marshlands.



Nipa Swamp



Freshwater Swamp



Constructed Wetland



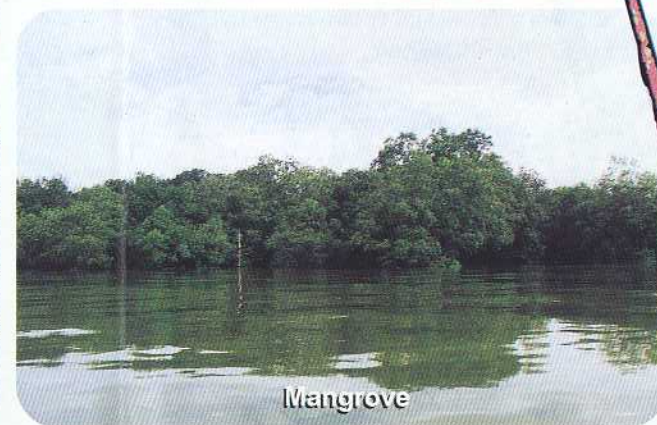
River System



Freshwater Lake



Marine Lagoon



Mangrove

Freshwater Lake





# Wetland Benefits

## ● Source of Natural Products

Wetland products such as timber and fisheries have great economic value. Timber is used as construction material. Mangrove wood is used for charcoal. Some parts of wetland plant species can be eaten. Meat from wetland fauna provides protein while cane and reeds are natural materials for thatching and mats.

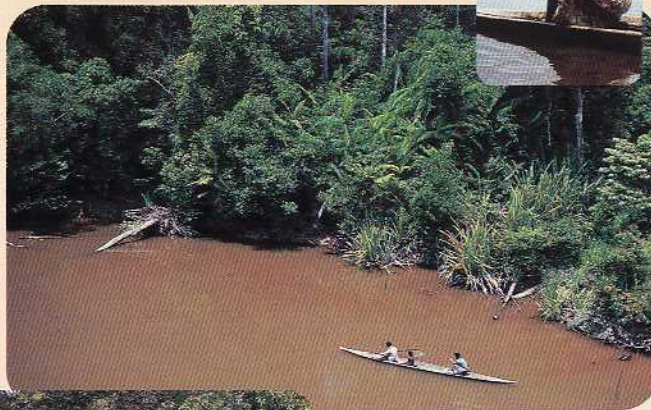


## ● Energy Production

Hydroelectric power is produced from damming a river. Mangrove wood provides firewood and charcoal but these are non-renewable resources and must be carefully utilised.

## ● Water Transport

River systems are important forms of transportation for people, goods, bulk cargo and agricultural products.



## ● Recreation and Tourism

Wetlands are fun places for recreational activities like swimming, fishing, rafting, diving, bird watching and jungle trekking.

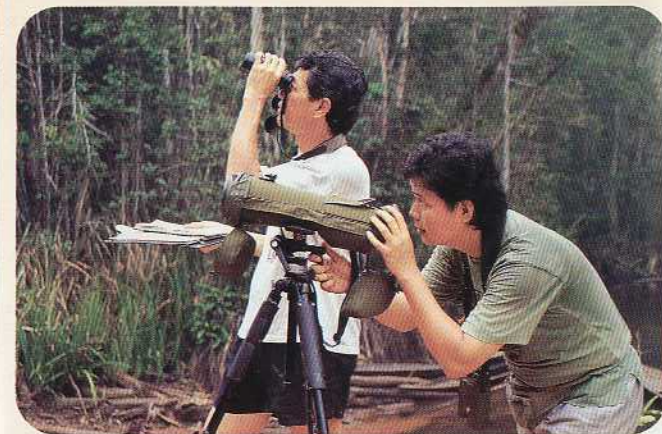
## ● Socio-cultural Values

Many local inhabitants have strong religious, spiritual or cultural attachments to a wetland site for many generations and these ties to the land must be respected.



## ● Research and Education

Wetland biodiversity opens up the horizon for both scientific research and education to people from all age groups.





# Wetland Functions

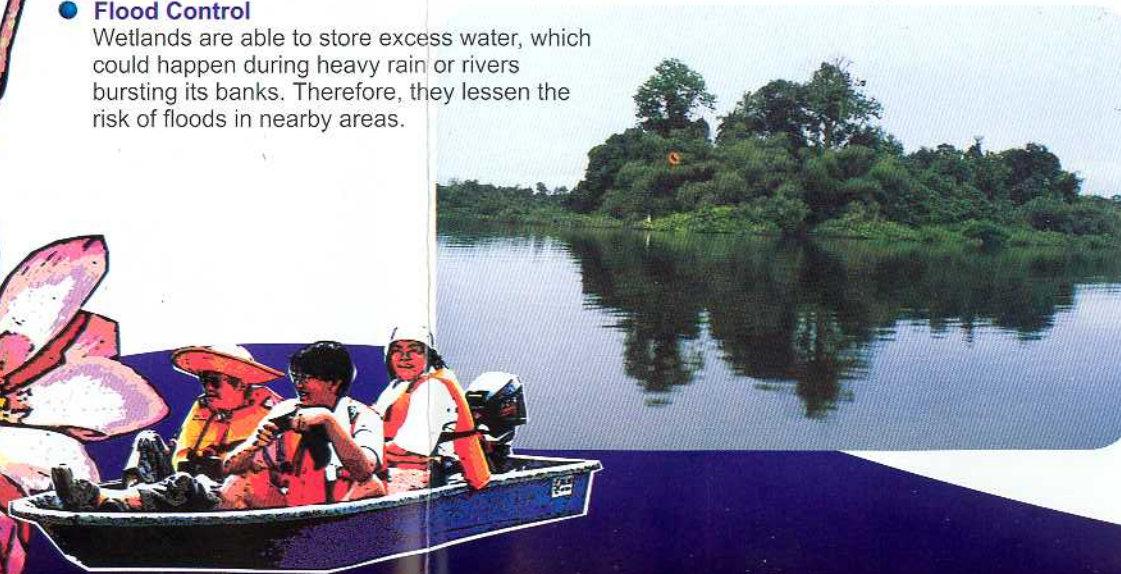
- **Clean Water Supply**

Where does the water we drink everyday come from? We get clean water supply from important wetland sources like rivers, lakes and ponds.



- **Flood Control**

Wetlands are able to store excess water, which could happen during heavy rain or rivers bursting its banks. Therefore, they lessen the risk of floods in nearby areas.



- **Protection from Erosion and Wind**

Wetlands provide natural shoreline protection, erosion control and act as a windbreaker. Wetland vegetation binds and stabilises the soil thereby trapping sediments by their roots.



- **Sediment, Nutrient & Toxicant Retention**

Wetlands and their vegetation act as a filter for sediment, nutrients and toxicants, leaving us with basically a cleaner and healthier water supply.

- **Prevention of Salt Water Intrusion**

Wetlands act as a barrier between the deep saline water and freshwater, therefore preventing the entry of salt water. This helps maintain the quality of groundwater.



- **Reducing Global Warming**

Peatlands act as carbon sinks. If peatlands are destroyed, the carbon dioxide is released into the atmosphere, thus contributing to global warming.

